

Work Order ID 150895***150895***

Page 1

Monday, September 12, 2016 10:24:23 AM

Item ID: 647.0112

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Strut Bracket

Start Date: 8/19/2016 Start Qty: 10.00

10

Cust Item ID:

Required Date: 9/12/2016 Req'd Qty: 10.00

10

Customer:

Reference:

DAS
21
9-89

SEP 12 2016

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
647.0100	A

100

0.01

100

FLOW WATER JET

Waterjet

Memo

0.05

FLOW CNC Waterjet

1-Cut as per Dwg

Dwg Rev: AProg Rev: A

2-Deburr if necessary

(15)

Dec 16/09/24

110

QC2- Inspect parts off machine FAI/FAIB

0.00

110

QC

Memo

0.02

Quality Control

(15)

Dec 16/09/24

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																							
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																																																												
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																																																												
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																																																												
Large Fab ☐	Composite ☐	Supplier ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																								
Description Work Order Deviation				Disposition				Completed By																																																							
								Lead hand / Supervisor Approval Verification																																																							
										QC / QA Coordinator Approval																																																					
Root Cause				FAULT CATEGORY																																																											
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	No Re-verification ☐	Operator ☐	Offset/Setup ☐	Supplier ☐	Training ☐	Use for Testing ☐	Poor Information ☐	Rushing ☐	Product Improvement ☐	Process Improvement ☐	Manufacturing Process ☐	Past Due ☐	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
																								OTHER :																																							

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
OTHER : _____																									

Work Order ID 150895

Monday, September 12, 2016 10:24:23 AM

150895

Page 3

Item ID: 647.0112 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Strut Bracket
Start Date: 8/19/2016 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 9/12/2016 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150		0.00							
150						10			
SprayPaint	Memo	0.02							6-10-16
Spray Painting	PRIME AS PER DWG NOTE 6								
	BATCH: <u>134000</u>								
160	QC14- Inspect Spray Paint	0.00							
160									DAS 38
QC	Memo	0.02							9-89
Quality Control									OCT 07 2016
170	Identify as per dwg & Stock Location <u>CC101</u>	0.00							
170						15			DAS 6
Packaging	Memo	0.02							9-89
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***						OCT 12 2016		

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐			
Design ☐	☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐			
Doc/Data ☐	☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐			
Equip/Tooling ☐	☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐			
Handling/Pre ☐	☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐			
Material ☐	☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐			
Internal Transport ☐	☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐			
Tribal Knowledge ☐	☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐			
LOA ☐	☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐			
Substation ☐	☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐			
Past Expiry Date ☐	☐	Manufacturing Process ☐	OTHER :						
Misidentified ☐	☐	Past Due ☐							

Work Order ID 150895***150895***

Page 4

Monday, September 12, 2016 10:24:23 AM

Item ID: 647.0112 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Strut Bracket
Start Date: 8/19/2016 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 9/12/2016 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.17							
Quality Control									

DAS
21
9-89

OCT 1 3 2016

DAS
21
9-89

OCT 1 2 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition																					
								Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
OTHER : ☐																									

Picklist Print

Monday, September 12, 2016 10:24:26 AM

Page 1

Work Order ID: 150895

150895

Parent Item: 647.0112

647 0112

Parent Item Name: Strut Bracket

Start Date: 8/19/2016

Required Date: 9/12/2016

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP REV:A 12.08.14 NEW ISSUE DD VERF:JFS

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S14GA		Purchased	No			100	sf	11.6000	0.0325	0.342105			

M304S14GA

304SS sheet .080

0.16/09/24

Location

Loc Qty

Loc Code

MAT019

11.6

M129972

5.7

M135061

5.9

5

DQA: _____ Date: _____

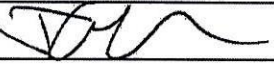
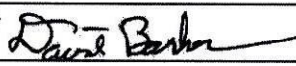
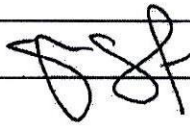


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																		
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																																																																			
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																																																																			
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																																																																			
Large Fab ☐	Composite ☐	Supplier ☐																																																																				
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval																																																																		
Description Work Order Deviation		Disposition		Completed By																																																																		
				Lead hand / Supervisor Approval Verification																																																																		
				QC / QA Coordinator Approval																																																																		
Root Cause		FAULT CATEGORY																																																																				
<table style="width:100%; border: none;"> <tr><td style="border: none;">Environment ☐</td><td style="border: none;">No Re-verification ☐</td></tr> <tr><td style="border: none;">Design ☐</td><td style="border: none;">Operator ☐</td></tr> <tr><td style="border: none;">Doc/Data ☐</td><td style="border: none;">Offset/Setup ☐</td></tr> <tr><td style="border: none;">Equip/Tooling ☐</td><td style="border: none;">Supplier ☐</td></tr> <tr><td style="border: none;">Handling/Pre ☐</td><td style="border: none;">Training ☐</td></tr> <tr><td style="border: none;">Material ☐</td><td style="border: none;">Use for Testing ☐</td></tr> <tr><td style="border: none;">Internal Transport ☐</td><td style="border: none;">Poor Information ☐</td></tr> <tr><td style="border: none;">Tribal Knowledge ☐</td><td style="border: none;">Rushing ☐</td></tr> <tr><td style="border: none;">LOA ☐</td><td style="border: none;">Product Improvement ☐</td></tr> <tr><td style="border: none;">Substation ☐</td><td style="border: none;">Process Improvement ☐</td></tr> <tr><td style="border: none;">Past Expiry Date ☐</td><td style="border: none;">Manufacturing Process ☐</td></tr> <tr><td style="border: none;">Misidentified ☐</td><td style="border: none;">Past Due ☐</td></tr> </table>	Environment ☐	No Re-verification ☐	Design ☐	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☐	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☐	Substation ☐	Process Improvement ☐	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Pressure/Forced ☐</td></tr> <tr><td style="border: none;">Bending ☐</td></tr> <tr><td style="border: none;">Centre Not Concentric ☐</td></tr> <tr><td style="border: none;">Cracks ☐</td></tr> <tr><td style="border: none;">Crimp/Kink/Ripple/Wave ☐</td></tr> <tr><td style="border: none;">Cuffs ☐</td></tr> <tr><td style="border: none;">Crushing ☐</td></tr> <tr><td style="border: none;">Heat Treat ☐</td></tr> <tr><td style="border: none;">Wave/Twist in Tube ☐</td></tr> <tr><td style="border: none;">Marks/Chatter ☐</td></tr> </table>	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Temperature/Cure ☐</td></tr> <tr><td style="border: none;">Set-up ☐</td></tr> <tr><td style="border: none;">BOM/Route ☐</td></tr> <tr><td style="border: none;">Broken/Damage/Defect ☐</td></tr> <tr><td style="border: none;">Inspection Incomplete/Unqualified ☐</td></tr> <tr><td style="border: none;">Contamination ☐</td></tr> <tr><td style="border: none;">Countersink ☐</td></tr> <tr><td style="border: none;">Cut Too Short ☐</td></tr> <tr><td style="border: none;">Instructions Incomplete/Unclear ☐</td></tr> <tr><td style="border: none;">Drill Holes ☐</td></tr> </table>			Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Power Loss/Surge ☐</td></tr> <tr><td style="border: none;">Folio/Program ☐</td></tr> <tr><td style="border: none;">Grain ☐</td></tr> <tr><td style="border: none;">Weld ☐</td></tr> <tr><td style="border: none;">Wrong Stock Pulled ☐</td></tr> <tr><td style="border: none;">Out of Sequence ☐</td></tr> <tr><td style="border: none;">Off-set ☐</td></tr> <tr><td style="border: none;">Mislabeled ☐</td></tr> <tr><td style="border: none;">Fit/Function ☐</td></tr> <tr><td style="border: none;">Misaligned/off center ☐</td></tr> </table>	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	<table style="width:100%; border: none;"> <tr><td style="border: none;">Positioned Wrong ☐</td></tr> <tr><td style="border: none;">Outside Dimensions ☐</td></tr> <tr><td style="border: none;">Over/Under tolerance ☐</td></tr> <tr><td style="border: none;">Part Incorrect ☐</td></tr> <tr><td style="border: none;">Part Lost/Missing ☐</td></tr> <tr><td style="border: none;">Part Moved ☐</td></tr> <tr><td style="border: none;">Drawing ☐</td></tr> <tr><td style="border: none;">Finish ☐</td></tr> <tr><td style="border: none;">Misread ☐</td></tr> <tr><td style="border: none;">Turning Sequence ☐</td></tr> </table>	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
Environment ☐	No Re-verification ☐																																																																					
Design ☐	Operator ☐																																																																					
Doc/Data ☐	Offset/Setup ☐																																																																					
Equip/Tooling ☐	Supplier ☐																																																																					
Handling/Pre ☐	Training ☐																																																																					
Material ☐	Use for Testing ☐																																																																					
Internal Transport ☐	Poor Information ☐																																																																					
Tribal Knowledge ☐	Rushing ☐																																																																					
LOA ☐	Product Improvement ☐																																																																					
Substation ☐	Process Improvement ☐																																																																					
Past Expiry Date ☐	Manufacturing Process ☐																																																																					
Misidentified ☐	Past Due ☐																																																																					
Pressure/Forced ☐																																																																						
Bending ☐																																																																						
Centre Not Concentric ☐																																																																						
Cracks ☐																																																																						
Crimp/Kink/Ripple/Wave ☐																																																																						
Cuffs ☐																																																																						
Crushing ☐																																																																						
Heat Treat ☐																																																																						
Wave/Twist in Tube ☐																																																																						
Marks/Chatter ☐																																																																						
Temperature/Cure ☐																																																																						
Set-up ☐																																																																						
BOM/Route ☐																																																																						
Broken/Damage/Defect ☐																																																																						
Inspection Incomplete/Unqualified ☐																																																																						
Contamination ☐																																																																						
Countersink ☐																																																																						
Cut Too Short ☐																																																																						
Instructions Incomplete/Unclear ☐																																																																						
Drill Holes ☐																																																																						
Power Loss/Surge ☐																																																																						
Folio/Program ☐																																																																						
Grain ☐																																																																						
Weld ☐																																																																						
Wrong Stock Pulled ☐																																																																						
Out of Sequence ☐																																																																						
Off-set ☐																																																																						
Mislabeled ☐																																																																						
Fit/Function ☐																																																																						
Misaligned/off center ☐																																																																						
Positioned Wrong ☐																																																																						
Outside Dimensions ☐																																																																						
Over/Under tolerance ☐																																																																						
Part Incorrect ☐																																																																						
Part Lost/Missing ☐																																																																						
Part Moved ☐																																																																						
Drawing ☐																																																																						
Finish ☐																																																																						
Misread ☐																																																																						
Turning Sequence ☐																																																																						
OTHER : ☐																																																																						

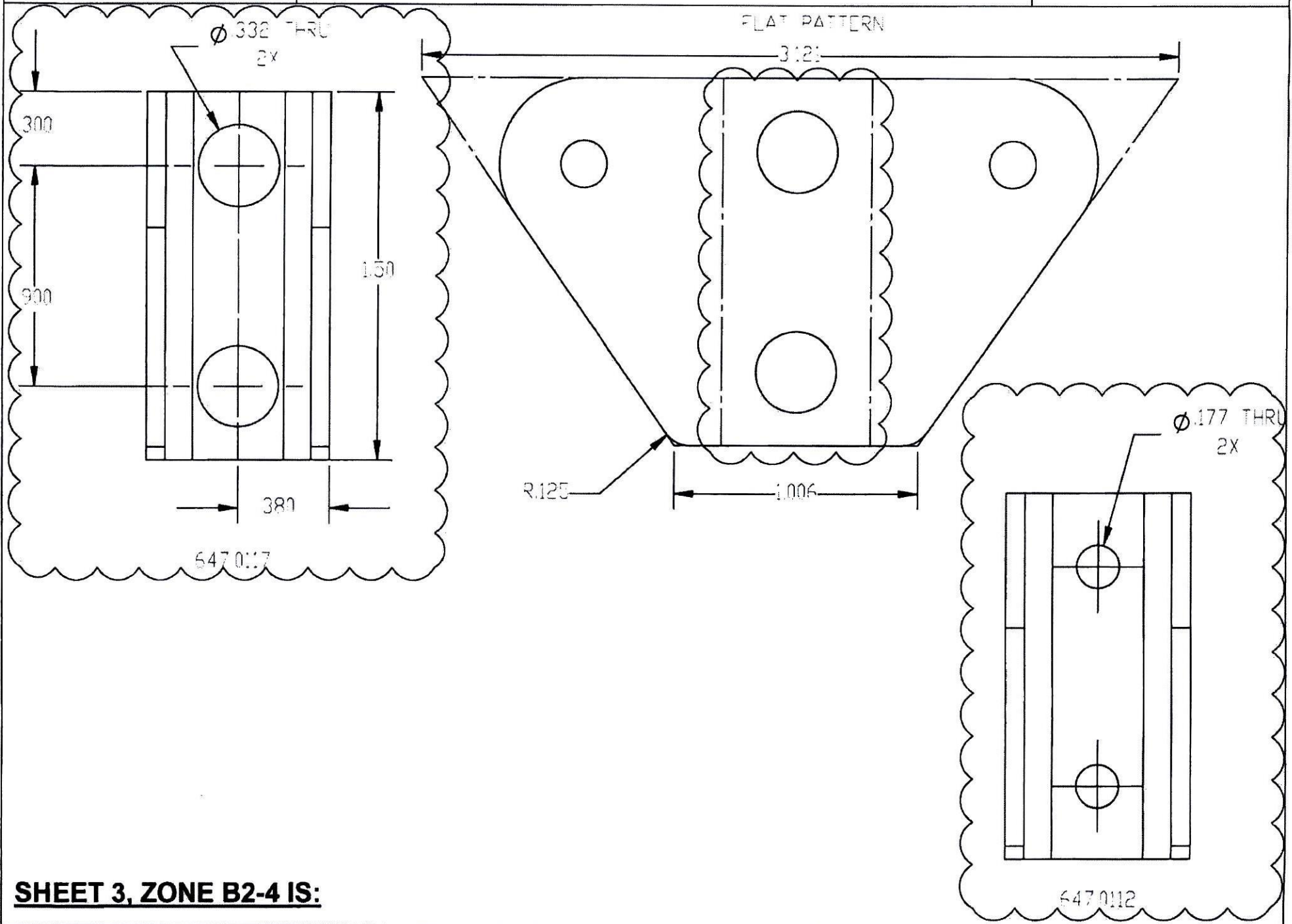
APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 03985			SHEET 1 OF 2	
	DWG NO. 647.0100	REV: A	PREPARED BY J. BECKER	DATE: 7/15/13	EFFECT ON DWG ☐ INC. ☒ UNINC.
	DWG TITLE: SHEET METAL				
APPROVED BY: ENGR. 		MFG 	QC 	EFF. NEXT ORDER	
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REVISED NOTE 2. ADDED 647.0117			

- NOTES:
- IS** →
- 1 MATERIAL: ALUMINUM 2024-T3 PER AMS-QQ-A-250/4.
 - 2 FINISH: IAW MPP-172 ANODIZE IAW SECTION 2.1, PRETREATMENT IAW SECTION 3.1 AND PRIMER IAW SECTION 4.1.
 - 3. DEBURR AND BREAK ALL SHARP EDGES.
 - 4. IDENTIFY IAW MPP-120.
 - 5 MATERIAL: 304 SS IAW AMS 5643.
 - 6 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N.
 - 7 OTHER DIMENSIONS SAME AS 647.0112.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 150895 MJS
1609-12

SHEET 1, ZONE D1 IS:

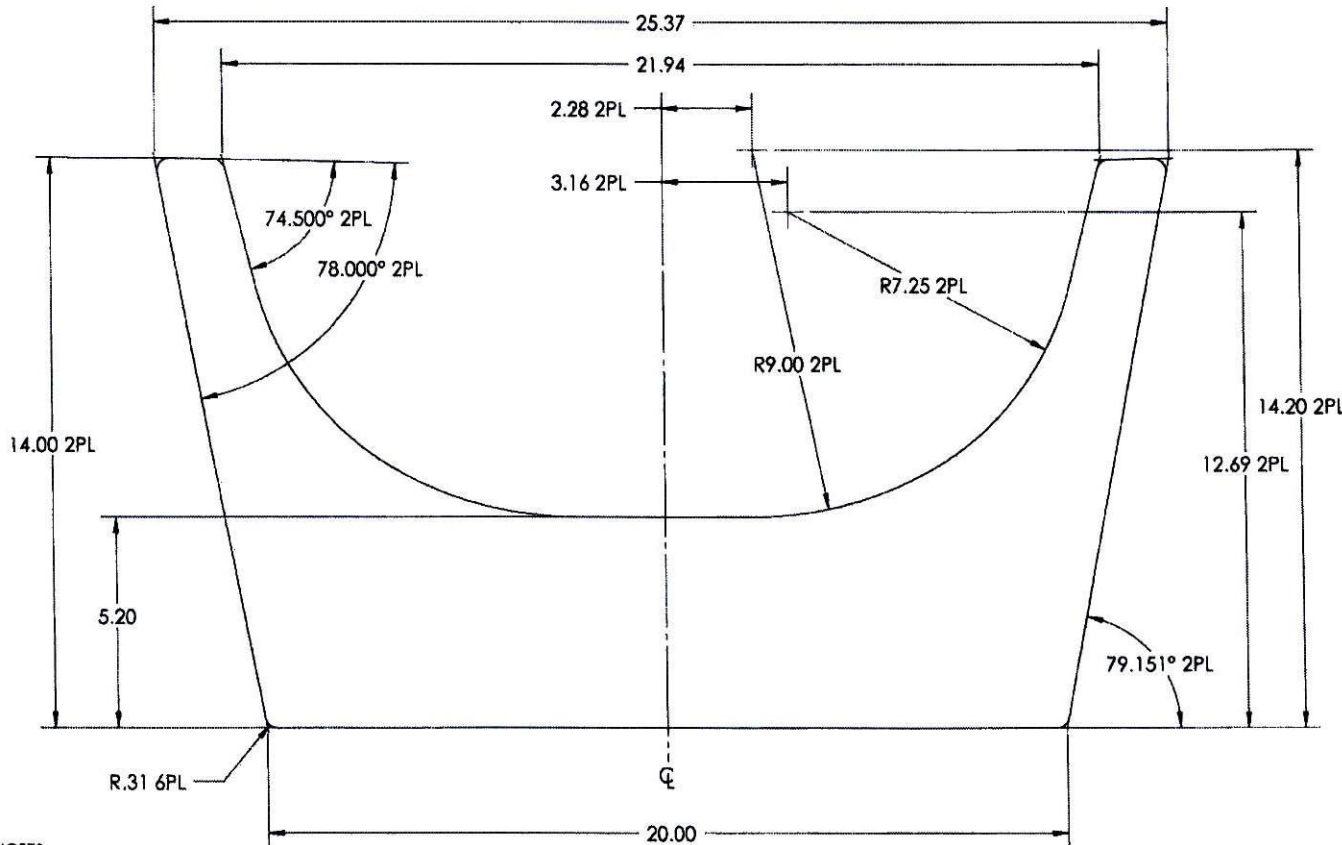
C	647.0117	STRUT BRACKET		△	△
F/N	TC	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION
DOCUMENTS EFFECTED:			CHANGE CATEGORY	DER REVIEW REQUIRED	
☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM			☐ MAJOR ☒ MINOR	☐ YES ☒ NO	



SHEET 3, ZONE B2-4 IS:

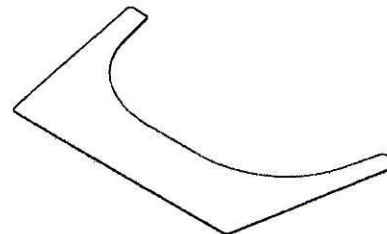
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION 092		N/C
N/C	INITIAL RELEASE	03/28/09	P. BRAVO
A	INCORPORATED ICH 12722, 12944, 12989	04/26/11	P. BRAVO



NOTES:

- 1 MATERIAL: ALUMINUM 2024-T3 PFR AMS-QQ-A-250/4.
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; PRETREAT PR-148 ADHESION PROMOTER; PRIME IAW MIL-P-23377J TYPE I CLASS N.
3. DEBURR AND BREAK ALL SHARP EDGES.
4. IDENTIFY IAW MPP-120.
- 5 MATERIAL: 304 SS IAW AMS 5643.
- 6 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N.



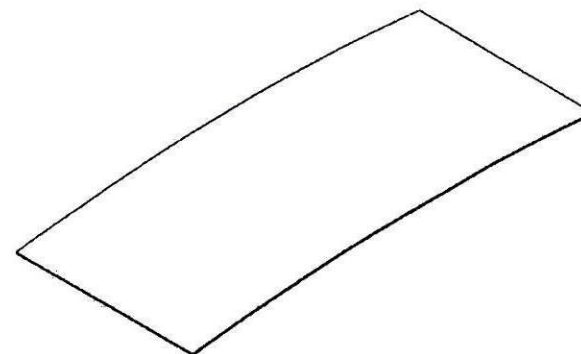
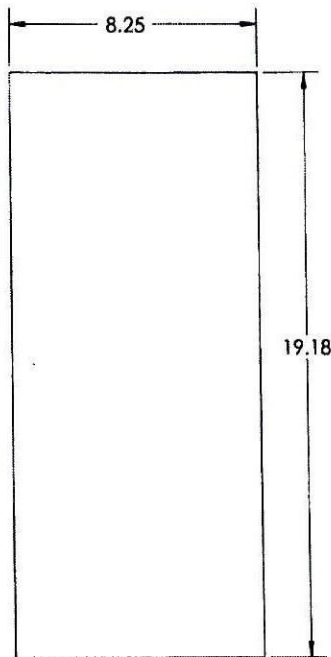
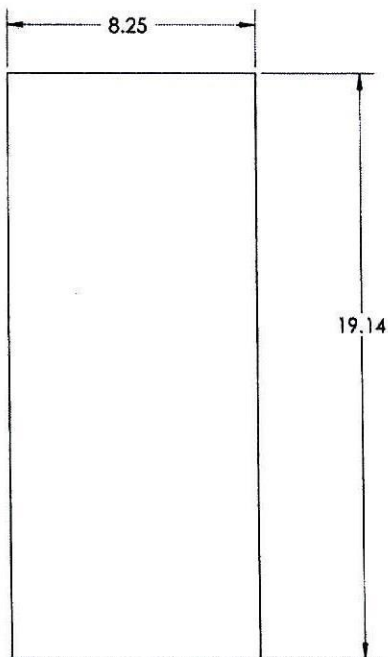
647.0110

UNINCORPORATED ECN(S)

03985

		647.0116	DOUBLER	△	△
		647.0115	CLIP	△	△
		647.0114	CLIP	△	△
		647.0113	STRUT DOUBLER	△	△
		647.0112	STRUT BRACKET	△	△
		647.0111	PANEL	△	△
		647.0110	ROOF DOUBLER	△	△
	FIND #	PART #	DESCRIPTION	MATL	SPEC.
PARTS LIST					
QTY	APICAL INDUSTRIES				
NEXT ASSY (S)	2608 TEMPLE HEIGHTS DR.				
646.9500	OCEANSIDE, CA. 92056-3512 (760) 724-5300				
SHEETMETAL					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± .5°					
ORIGINAL DATE	DATE	DATE	DATE	DATE	DATE
DESIGNED BY	DESIGNED BY	DESIGNED BY	DESIGNED BY	DESIGNED BY	DESIGNED BY
DRAWN BY	DRAWN BY	DRAWN BY	DRAWN BY	DRAWN BY	DRAWN BY
APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL
CONTRACT NO.	CONTRACT NO.	CONTRACT NO.	CONTRACT NO.	CONTRACT NO.	CONTRACT NO.
SRT		CAGE CODE	ENG	647.0100	REV
B		07M26			A
SCALE NONE		SHEET		1 OF 6	

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED



647.0111

FLAT PATTERN



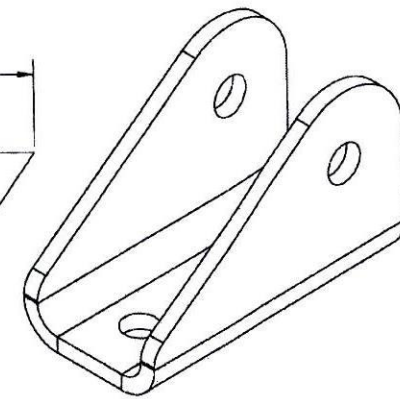
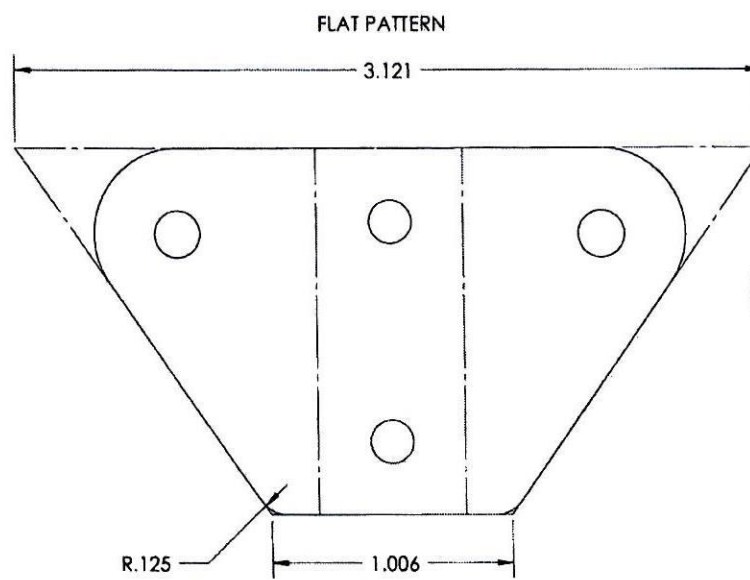
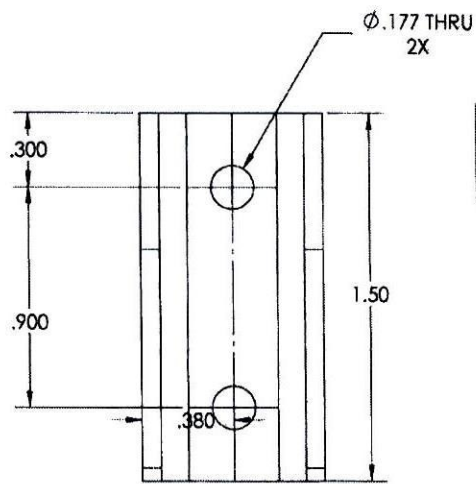
.063

R83.40

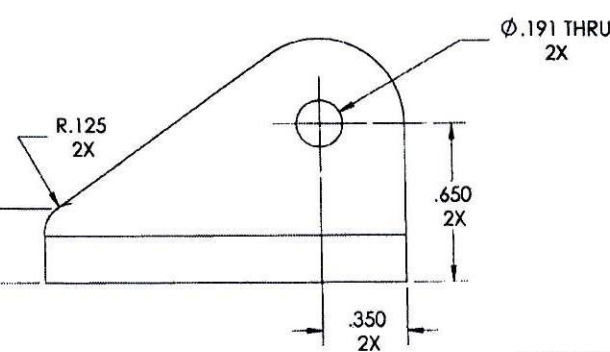
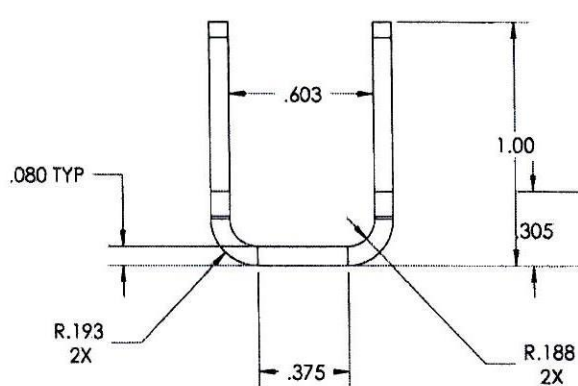
OFFICIAL DATE JUN 04 - 05:28:00		APICAL INDUSTRIES	
DRAWN BY B. BOHANNON P. BAUVO		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DRAWING APPROVAL P. BAUVO			
FUNCTIONALITY		SHEETMETAL	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ± .01 ANGLES ± 5°			
SIZE	CAGE CODE	DWG. NO.	REV.
B	07/2016	647.0100	A
SCALE: NONE			SHEET 2 OF 6

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



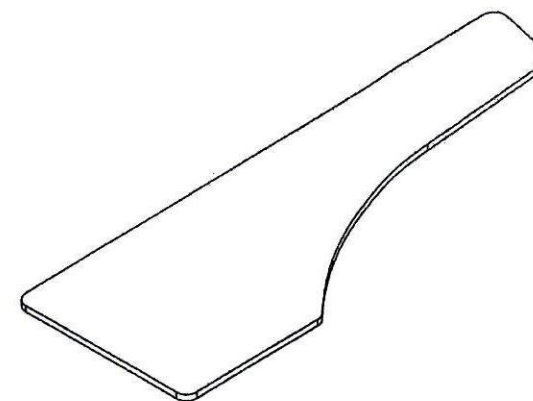
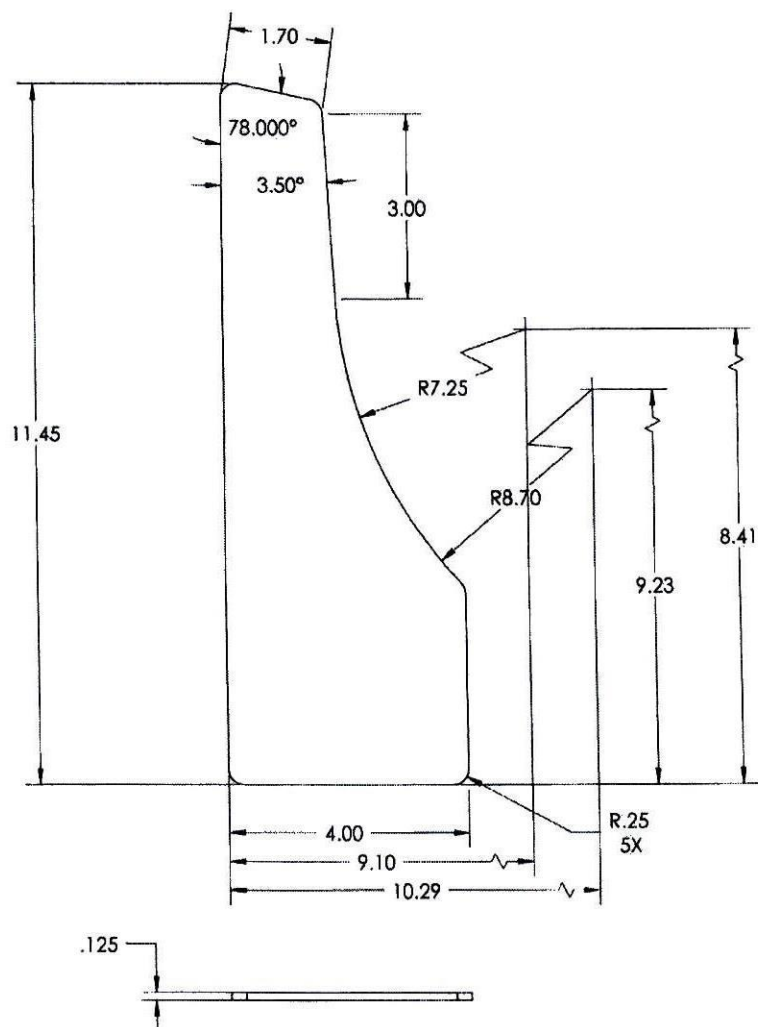
647.0112



ORIGINAL DATE 1/10/2010	DESIGNED BY R. ROSANO	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
CHECKED BY P. BRAVO	DRAWN BY P. BRAVO	SHEETMETAL	
DRAWING APPROVAL P. BRAVO 01/26/10	CONTRACT NO.		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMALS ± .01 2 PLACE DECIMALS ± .005 ANGLES ± .5°		DWG. NO. 647.0100	REV. A
SCALE: NONE		SHEET	3 OF 6

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

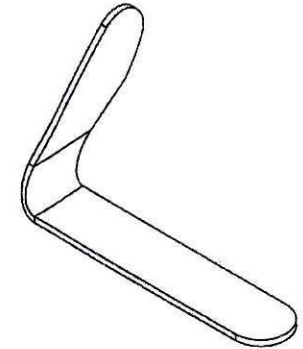


647.0113

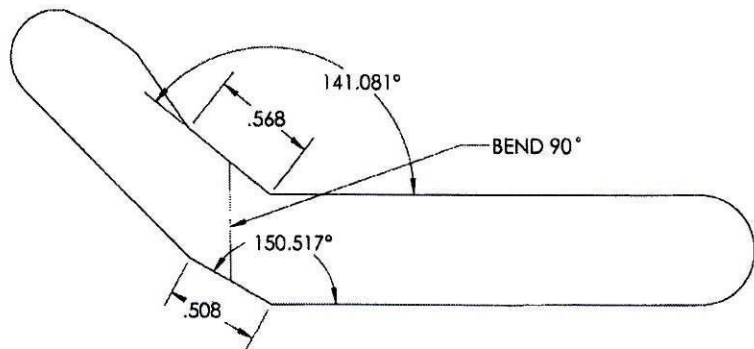
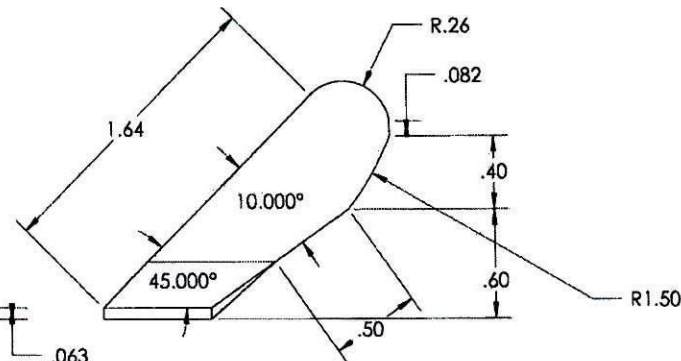
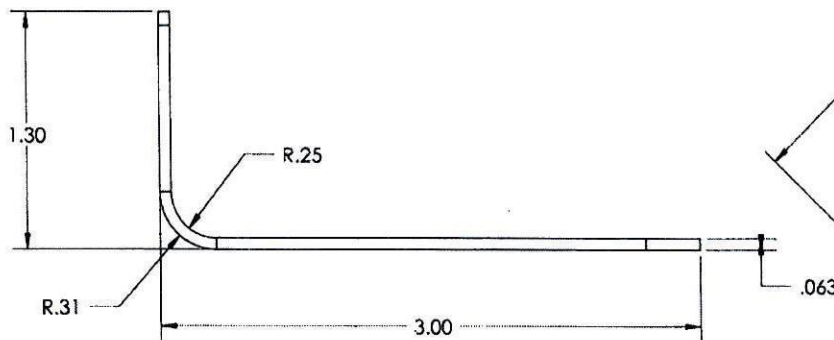
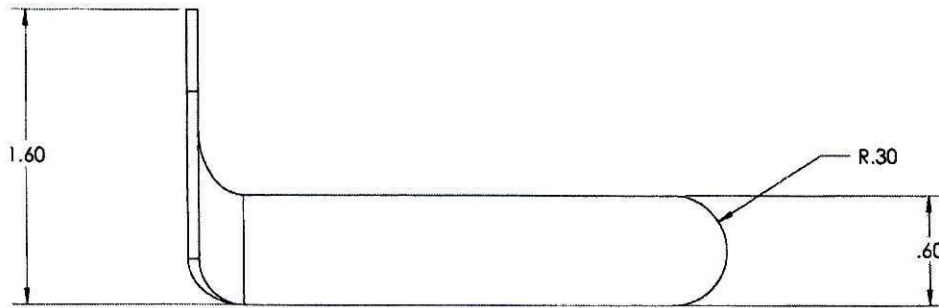
ORIGINAL DATE 05-28-09		APICAL INDUSTRIES	
DRAWN BY J. POSANO		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL J. BRAVO		SHEETMETAL	
CONTRACT NO.		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± .1°	
REV	CAGE CODE	DATE	REV
B	07M26	647.010J	A
SCALE: NONE		SHEET 4 OF 6	

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



647.0114 SHOWN
647.0115 OPPOSITE

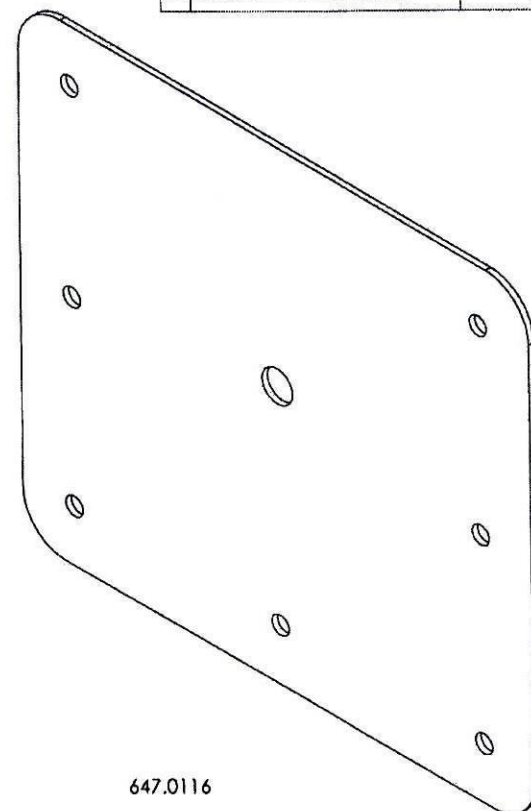
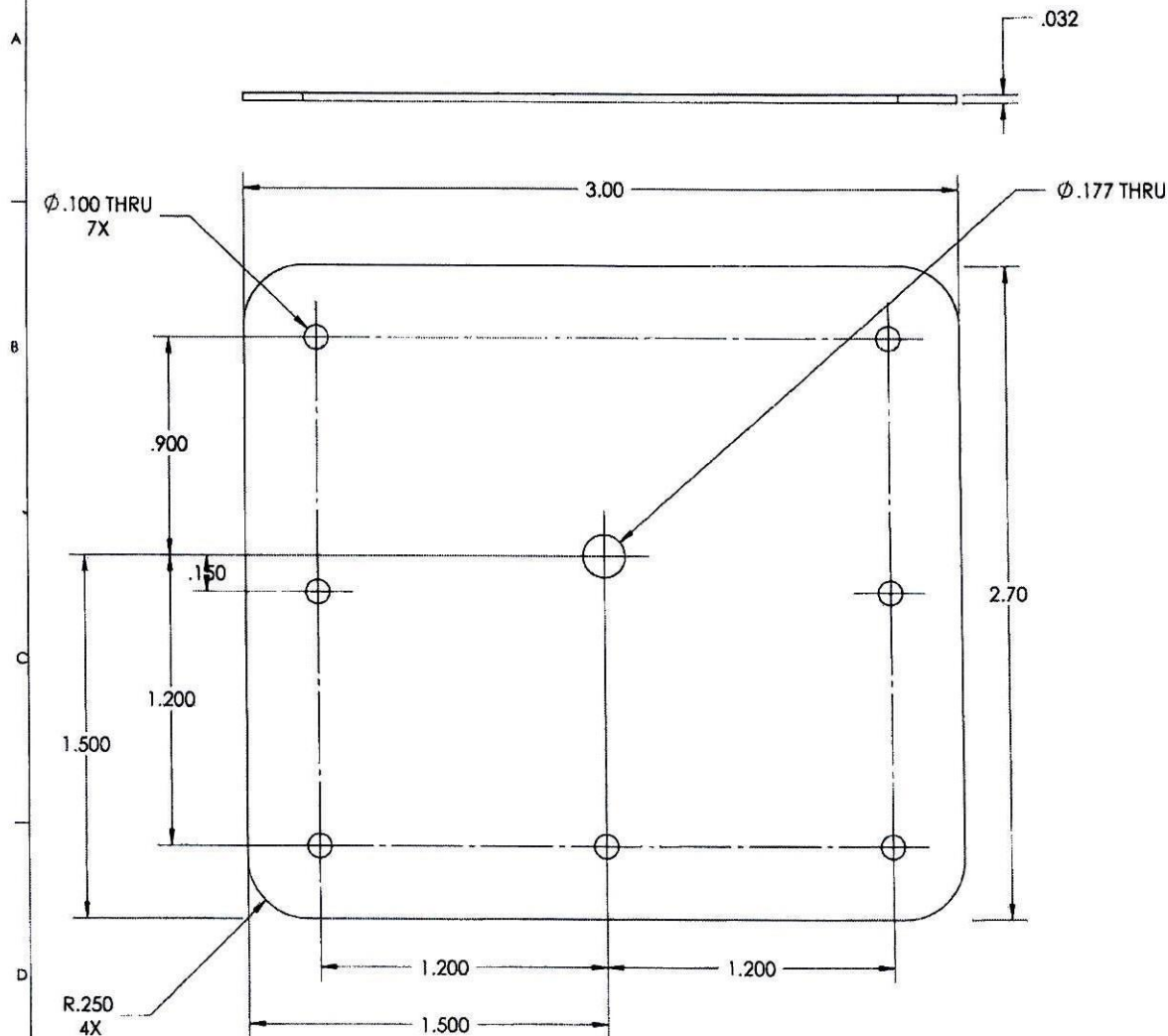


FLAT PATTERN

ORIGINAL DATE 10/20/19 05:28:09		APICAL INDUSTRIES	
DRAWN BY P. ROSANO		2608 TEMPLE HEIGHTS DR.	
CHECKED BY P. BRAVO		OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BRAVO		SHEETMETAL	
CONTRACT NO.		SIZE 8	REV. A
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ± .01 ANGLES ± .5°		DWG. NO. 07M26	647.0100
SCALE NONE		SHEET 5 OF 6	

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



647.0116

ORIGINAL DATE 2/20/24 10:28:00		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWN BY P. ROSANO	CHECKED P. BRAVO	SHEETMETAL	
DRAWING APPROVAL P. BRAVO 02/20/24		SCALE NONE	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 3 PLACES DECIMALS ±.01 ANGLES ± .5°		SUP B	REV A
CAGE CODE 07MA26		DWG NO 647.0100	SHEET 6 OF 6